

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-66. (Canceled)

67. (New) An isolated nucleic acid molecule comprising a nucleotide sequence encoding a polypeptide having starch synthase activity or a nucleotide sequence complementary thereto, said nucleotide sequence selected from the group consisting of:

- (i) a nucleotide sequence having at least 85% identity to the nucleotide sequence of the protein-encoding region of the nucleotide sequence set forth in SEQ ID NO: 3;
- (ii) a nucleotide sequence encoding a polypeptide having at least 85% identity to the amino acid sequence set forth in SEQ ID NO: 4; and
- (iii) a nucleotide sequence which is complementary to (i) or (ii).

68. (New) The isolated nucleic acid molecule according to claim 67 wherein the wheat starch synthase polypeptide comprises one or more amino acid sequences selected from the group consisting of:

- (a) KVGGLGDVVT;
- (b) GHTVEVILPKY;
- (c) HDWSSAPVAWLYKEHY;
- (d) GILNGIDPDIWDPYTD;
- (e) DVPIVGIITRLTAQKG;
- (f) NGQVVLLGSA;

- (g)AGSDFIIVPSIFPCGLTQLVAMRYGS;
- (h)TGGLVDTV;
- (i) KTGGLGDVAGA;
- (j) GHRVMVVVPY;
- (k) NDWHTALLPVYLKAYY;
- (l) GIVNGIDNMEWNPEVD;
- (m) DVPLLGFGRLDGQKG;
- (n) DVQLVMLGTG;
- (o)AGADALLMPSRF(E/V)PCGLNQLYAMAYGT; and
- (p)VGG(V/L)RDTV.

- 69. (New) The isolated nucleic acid molecule of claim 68 wherein the starch synthase polypeptide comprises at least three of said amino acid sequences selected from the group consisting of (a) to (h).
- 70. (New) The isolated nucleic acid molecule of claim 68 wherein the starch synthase polypeptide comprises at least six of said amino acid sequences selected from the group consisting of (i) to (p).
- 71. (New) The isolated nucleic acid molecule of claim 67 wherein the polypeptide is a wheat starch synthase II polypeptide.
- 72. (New) The isolated nucleic acid molecule of claim 68 wherein the starch synthase polypeptide further comprises one or more amino acid sequences selected from the group consisting of:
 - (a) GHTVEVILPKY;
 - (b) HDWSSAPVAWLYKEHY;

- (c) DVPIVGIITRLTAQKG;
 - (d) NGQVLLGSA;
 - (e) AGSDFIIVPSIFPCGLTQLVAMRYGS;
 - (f) TGGLVDTV;
 - (g) GIVNGIDNMEWNPEVD; and
 - (h) AGADALLMPSRF(E/V)PCGLNQLYAMAYGT.
73. (New) The isolated nucleic acid molecule of claim 71 which encodes a polypeptide which comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 2, SEQ ID NO: 4, and SEQ ID NO: 6.
74. (New) A probe or primer comprising at least 15 contiguous nucleotides of the isolate nucleic acid molecule of claim 67.
75. (New) The probe or primer of claim 74 comprising a nucleotide sequence selected from the group consisting of:
- (i) the nucleotide sequence set forth in SEQ ID NO: 25;
 - (ii) the nucleotide sequence set forth in SEQ ID NO: 26;
 - (iii) the nucleotide sequence set forth in SEQ ID NO: 27;
 - (iv) the nucleotide sequence set forth in SEQ ID NO: 28;
 - (v) a nucleotide sequence which encodes an amino acid sequence selected from the group consisting of:
 - (a) KVGGLGDVWTS;
 - (b) GHTVEVILPKY;
 - (c) HDWSSAPVAWLYKEHY;
 - (d) GILNGIDPDIWDPYTD;
 - (e) DVPIVGIITRLTAQKG;

- (f) NGQVLLGSA;
 - (g) AGSDFIIVPSIFEPCGLTQLVAMRYGS;
 - (h) TGGLVDTV;
 - (i) KTGGLGDVAGA;
 - (j) GHRVMVVVPRY;
 - (k) NDWHTALLPVYLKAYY;
 - (l) GIVNGIDNMEWNPEVD;
 - (m) DVPLLGFIRLDGQKG;
 - (n) DVQLVMLGTG;
 - (o) AGADALLMPSTRF(E/V)PCGLNQLYAMAYGT;
 - (p) VGG(V/L)RDTV; and
- (xvii) a nucleotide sequence which is complementary to any one of (i) to (v).

76. (New) A method comprising:

- (i) hybridising single-stranded or double-stranded mRNA, cDNA or genomic DNA with a nucleotide sequence selected from the group consisting of:
 - (a) the nucleotide sequence of claim 67;
 - (b) the probe or primer comprising at least about 15 contiguous nucleotides of the isolated nucleic acid molecule of claim 67; and
- (ii) detecting the hybridised mRNA, cDNA or genomic DNA using a detecting means.

77. (New) The method of claim 76 wherein the detecting means consists of a reporter molecule covalently attached to the probe or primer.

78. (New) The method of claim 76 wherein the detecting means consists of a polymerase chain reaction.

79. (New) The method of claim 76 wherein the probe or primer comprises a nucleotide sequence selected from the group consisting of:

- (i) the nucleotide sequence set forth in SEQ ID NO: 25;
- (i) the nucleotide sequence set forth in SEQ ID NO: 26;
- (ii) the nucleotide sequence set forth in SEQ ID NO: 27;
- (iii) the nucleotide sequence set forth in SEQ ID NO: 28;
- (iv) a nucleotide sequence which encodes an amino acid sequence selected from the group consisting of:
 - (a) KVGGLGDVVT;
 - (b) GHTVEVILPKY;
 - (c) HDWSSAPVAWLYKEHY;
 - (c) GILNGIDPDIWDPYTD;
 - (d) DVPIVGIITRLTAQKG;
 - (e) NGQVLLGSA;
 - (f) AGSDFIIVPSIFPCGLTQLVAMRYGS;
 - (g) TGGLVDTV;
 - (h) KTGGLGDVAGA;
 - (i) GHRVMVVVPRY;
 - (j) NDWHTALLPVYLKAYY;
 - (k) GIVNGIDNMEWNPEVD;
 - (l) DVPLLGFGRDLGQKG;
 - (m) DVQLVMLGTG;
 - (n) AGADALLMPSTRF(E/V)PCGLNQLYAMAYGT;
 - (o) VGG(V/L)RDTV; and
 - (p) a nucleotide sequence which is complementary to any one of (i) to (v).

80. (New) A method of modifying the starch content and/or starch composition of one or more tissues or organs of a plant, said method comprising the step of expressing in said plant a nucleic acid molecule for a time and under conditions sufficient for the enzyme activity of one or more starch synthase isoenzymes to be modified, wherein said nucleic acid molecule is selected from the group consisting of:
- (i) the isolated nucleic acid molecule according to claim 67;
 - (ii) a fragment of (i) which comprises a nucleotide sequence which is expressed to down-regulate the expression of an endogenous wheat starch synthase isoenzyme of said plant; and
 - (iii) a fragment of (i) which encodes a functional wheat starch synthase isoenzyme of said plant.
81. (New) The method of claim 80 wherein the fragment at sub-paragraph (ii) is an antisense molecule, ribozyme molecule, co-suppression molecule, or gene-targeting molecule.
82. (New) The method of claim 80 further comprising introducing the nucleic acid molecule to an isolated plant cell, tissue, organ, or organelle.
83. (New) The method of claim 82 further comprising regenerating an intact plant from the isolated plant cell, tissue, organ, or organelle carrying the introduced nucleic acid molecule.
84. (New) The method of claim 82 wherein the nucleic acid molecule is introduced to the plant cell, tissue, organ, or organelle by introgression.

- 85. (New) The method claim 82 wherein the nucleic acid molecule is introduced to the plant cell, tissue, organ, or organelle by transformation.
- 86. (New) A transgenic plant comprising the isolated nucleic acid molecule of claim 67.
- 87. (New) A progeny of the transgenic plant of claim 86 wherein said progeny comprises the nucleic acid molecule of claim 67.
- 88. (New) A propagule of the transgenic plant of claim 86 wherein said propagule comprises the nucleic acid molecule of claim 67.
- 89. (New) A gene construct or vector which comprises the nucleic acid molecule of claim 67 and one or more origins of replication.
- 90. (New) The gene construct according to claim 89 further comprising a promoter sequence in operable connection with said isolated nucleic acid molecule.
- 91. (New) A gene construct or vector which comprises the probe or primer according to claim 74 and one or more origins of replication.